



Substitute for form 1449A/PTO		<b>Complete if Known</b>			
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)		Application Number	10/734,812		
		Filing Date	12-11-2003		
		First Named Inventor	JARDINE, PETER A.		
		Art Unit	1775		
		Examiner Name	John J. Zimmerman		
Sheet	1	of	5	Attorney Docket Number	P042877-01-11

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code <sup>2</sup> (if known)			
[Handwritten Initials]		US-4,864,824	09-12-1989	GABRIEL ET AL.	
		US-5,061,914	10-29-1991	BUSCH ET AL.	
		US-5,325,880	07-05-1994	JOHNSON ET AL.	
		US-5,080,455	01-14-1992	KING ET AL.	
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		US-6,001,195	12-14-1999	KAJIWARA ET AL.	
		US-6,358,380	03-19-2002	MANN ET AL.	
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FOREIGN PATENT DOCUMENTS						
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		Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> (if known)				
		<del>59-116942</del>	<del>07-1984</del>			
		<del>60-86756</del>	<del>05-1985</del>			
		<del>60-166940</del>	<del>07-1988</del>			

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			Art Unit	1775
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Sheet	2	of	5	

NON PATENT LITERATURE DOCUMENTS		
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J		J.A. WALKER ET AL "Thin-film Processing of TiNi Shape Memory Alloy" Sensors and Actuators, vols. A21-A23, p. 243-246, 1990. (No Month)
		J.D. BUSCH et al., "Shape-memory properties in Ni-Ti Sputter Deposited Film", J. Appl. Phys., vol 68 (12), pp. 6224-6228, Dec. 15, 1990.
		K. KURIBAYASHI, et al., "Micron sized arm using reversible TiNi alloy thin film actuators" Mat. Res. Soc. Symp. Proc., vol 276, pp. 167-175, 1992 (No Month).
		J.D. BUSCH et al., "Phase transformations in sputtered Ni-Ti film: effects of heat treatment and precipitates", Mat. Res. Soc. Symp. Proc., vol 230, pp. 91-97, 1992 (No month)
		D.S. GRUMMON, et al., "Thermottractive titanium-nickel thin films for microelectromechanical systems and active composites", Mat. Res. Soc. Symp. Proc., vol 459, pp. 331-342, 1997 (No Month)
J		Q. SU, et al. "Martensitic transformation in Ni <sub>60</sub> Ti <sub>40</sub> films" J. of Alloys and Compound, vol. 211/212, pp. 460-463, 1994 (No month)
		G. MIYAZAKI et al., "Shape memory characteristics of sputter-deposited Ti-Ni base thin films", SPIE, vol-2441, pp. 156-164, 1995 (No Month).
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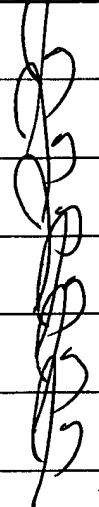
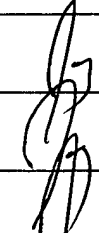
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			Art Unit	1775	
			Examiner Name	JOHN ZIMMERMAN	
Sheet	3	of	5	Attorney Docket Number	P042877-01a UT

NON PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.
		S. MIYAZAKI, et al. "Effect of heat treatment on deformation behavior associated with R-phase and martensitic transformations in Ti-Ni thin films" Trans. Mat. Res. Soc. Jpn., vol. 18B, pp. 1041-1044, 1994 (No Month)
		A. ISHIDA, et al., "Effect of heat treatment on shape memory behavior of Ti-rich Ti-Ni thin films", Materials Transactions, JIM, vol. 36, No. 11, pp. 1349-1355, 1995 (No Month).
		A. PETER JARDINE, "Deposition parameters for sputter-deposited thin film TiNi", Mat. Res. Soc. Symp. Proc., vol. 360, pp. 293-298, 1995 (No Month).
		T.W. DEURIG, et al. Engineering Aspects of Shape Memory Alloys, pp. 3-46, 1990 (No month).
		S. MIYAZAKI, et al., "Development of perfect shape memory effect in sputter-deposited Ti-Ni films", Proceedings IEEE Mico Electro Mechanical Systems, pp. 176-181, 1994 (No Month).
		R.H. WOLF, et al. "TiNi (Shape Memory) Films on Silicon for MEMS Applications". J. of Microelectromechanical Systems, vol. 4, No. 4, pp.206-212, Dec. 1995.
		<del>A. GYOBU, et al., "Martensitic transformation in sputter-deposited shape memory Ti-Ni films", Mat. Trans. JIM vol. 37, No. 4, pp. 697-702, Apr. 1996.</del>
		<del>P. KRILEVITCH et al., "Thin film shape memory alloy micro-actuators", J. of Microelectromechanical Systems, vol. 5, No. 4, pp. 270-282, Dec. 1996.</del>
		J. FAVALUKIS, et al., "An Experimentally Validated Thermal Model of Thin Film NiTi", Proceedings of SPIE, vol. 3668, Part Two, pp. 617-629, Mar. 1-4, 1999.
		C.M. Ho, et al., "Mems: Science and Technology," Application of Microfabrication to Fluid Mechanics, FED V. 197, ASME 1994, pp. 39-49, 1994. (No Month).
		L.G. Carpenter: Vacuum Technology an Introduction, Adam Hilger Ltd., Bristol 2 <sup>nd</sup> Edition, (1983), pp. 76-82. (No Month)

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J		Q.SU, et al., "Martensitic transformation in Ni50Ti50 films", SPIE vol. 2189, pp. 409-412 (1994). (No month)
J		V.S. CHERNYSH, et al., "Angular distributions of Ni and Ti atoms sputtered from a NiTi alloy under He+ and Ar+ ion bombardment," Nuclear Inst. and Methods in Physics Research B 140, pp. 303-310 (1998) (No month).
J		<del>I. NESHEV, et al., "Sputtering of NiTi alloys: a comparison of experiment and simulation", Vacuum vol. 44, Nos. 3-4, pp. 209-212 (1993). (No Month).</del>
J		Ken K. Hol, et al., "Modeling and measuring the response of times of thin film TiNi", SPIE Proceedings Smart Mat. Tech., vol. 3040, San Diego, CA, Mar. 3-4 1997, pp. 10-22.
J		<del>E. QUANDT, et al., Sensors and Actuators A50 (1995) Sputter Deposition of TiNi and TiNiPd Films Displaying the Two-Way Shape Memory Effect.</del>
J		BENDAHAN MARC, et al., "NiTi shape memory alloy thin films; composition control using optical emission spectroscopy", Thin Solid Films 283 (Sep. 1996), pp. 61-66
J		KRULEVITCH, P. et al., "Mixed-sputter deposition of Ni-Ti-Cu shape memory films", Thin Solid Films 274 (Mar. 1996), pp. 101-105
J		MIYAZAKI, S., et al., "Martensitic transformations in sputter-deposited Ti-Ni-Cu shape memory alloy thin films", Thin Solid Films 281-282 (Aug. 1996) pp. 354-367
J		CHEN, J.Z., "Crystallization behavior of r.f.-sputtered TiNi thin films" Thin Solid Films 339 (Feb. 1999) pp. 194-199.
J		<del>HO, KEN, et al., "Sputter depositions of NiTi thin film exhibiting the SME at room temperatures", Proceedings of the Symposium, 1998 ASME International Mechanical Engineering Congress and Exposition, Nashville, TN, Nov. 14-19, 1998.</del>
J		GABRY, B., et al., "Thermodynamic modeling of the recovery strains of sputter-deposited shape memory alloys Ti-Ni and Ti-Ni-Cu thin films", Thin Solid Films 372 (Sep. 2000), pp. 118-133

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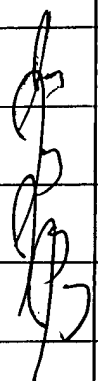
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		<del>HO, KEN K. et al., "Sputter deposition of NiTi thin film shape memory alloy using a heated target", Thin Solid Films 370 (Jul. 2000), pp. 48-29</del>	
		SURBLED, P., et al., "Shape memory alloys for micromembranes actuation", LIMMS/CNRS-IIS, Institute of Industrial Science, University of Tokyo 7-22-1 Roppongi, Minato-ku, Tokyo 106-8568, Japan 7 pages (no date).	
		KEN K. HO, JOHN J. GILL and Gregory P. Carman, "Sputter deposited NiTi thin film SMA for active flow control", 11 pages (no date).	
		GILL, J. et al., "Three Dimensional Thin Film Shape Memory Microactuator with Inherent Two-Way Actuation," J. of Microelectromechanical Systems, Feb. 2002, V11 # 1, pp. 68-78	
		GILL, J.J., et al., "Manufacturing Issues of Thin Film NiTi Microwrapper", Sensors and Actuators, Physical, 93(2), (2001), pp. 148-156	

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